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09/998,237	12/03/2001	Jurgen Kaczun	87/000048	5063

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EXAMINER	
GILLIAM, BARBARA LEE	
ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 03/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/998,237	KACZUN ET AL.	
	Examiner	Art Unit	
	Barbara Gilliam	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment 12/3/01 & IDS 2/4/02* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☒ Claim(s) *3 and 4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-8 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The papers (IDS) filed on February 4, 2002 (certificate of mailing dated January 9, 2002) have not been made part of the permanent records of the United States Patent and Trademark Office (Office) for this application (37 CFR 1.52(a)) because of damage from the United States Postal Service irradiation process. The above-identified papers, however, were not so damaged as to preclude the USPTO from making a legible copy of such papers. Therefore, the Office has made a copy of these papers, substituted them for the originals in the file, and stamped that copy:

COPY OF PAPERS
ORIGINALLY FILED

If applicant wants to review the accuracy of the Office's copy of such papers, applicant may either inspect the application (37 CFR 1.14(d)) or may request a copy of the Office's records of such papers (*i.e.*, a copy of the copy made by the Office) from the Office of Public Records for the fee specified in 37 CFR 1.19(b)(4). Please do **not** call the Technology Center's Customer Service Center to inquiry about the completeness or accuracy of Office's copy of the above-identified papers, as the Technology Center's Customer Service Center will **not** be able to provide this service.

If applicant does not consider the Office's copy of such papers to be accurate, applicant must provide a copy of the above-identified papers (except for any U.S. or foreign patent documents submitted with the above-identified papers) with a statement that such copy is a complete and accurate copy of the originally submitted documents. If applicant provides such a copy of the above-identified papers and statement within **THREE MONTHS** of the mail date of this Office action, the Office will add the original mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office. Otherwise, the Office's copy will be used as the permanent Office record of the above-identified papers (*i.e.*, the Office will use the copy of the above-identified papers made by the Office for examination and all other purposes). This three-month period is not extendable.

Specification

4. The use of the several trademarks including: PRINTEX U, PRINTEX L6, SPECIAL BLACK 4, SPECIAL BLACK 250, OMNISETTER, DIGILAS, NYLOSOLV, OPTISOL, KRATON, MAKROMELT, CYREL DPH, DIGIFLEX and FLEXLIGHT CBU, has been noted in this application. Trademarks should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

5. Claim 3 is objected to because of the following informalities: Claim 3 further defines the binder of claim 2 as containing nitro and/or nitrate ester groups however according to Claim 2 the binder contains nitro or nitrate ester groups. The specification does not define the binder of Layer B as containing nitro and nitrate ester groups (page 6, line 31 – page 7, line 19). The Examiner has interpreted the claim in light of specification. The "and/or" language of Claim 3 was treated as "or" for examination purposes and assumed to be a typographical error. Appropriate correction is required.

6. Claim 4 is objected to because of the following informalities: An elastomeric binder is present in both the photopolymerizable layer and laser-ablatable layer A of the flexographic printing element of claim 1. Claim 4 further defines the elastomeric binder

of claim 1 however it is not clear which elastomeric binder the claim refers to. For examination purposes, the Examiner has treated the elastomeric binder of claim 4 as the elastomeric binder of laser-ablatable layer A. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan.

a. In US Patent No. 5,262,275, Fan teaches a photosensitive printing element used for preparing flexographic printing plates comprising in this order a support, at least one layer of a photopolymerizable material on the support, the photopolymerizable material comprising at least one elastomeric binder, at least one monomer, at least one initiator having sensitivity to non-infrared actinic radiation, at least one barrier layer, at least one layer of infrared radiation sensitive material which is substantially opaque to actinic radiation and is ablatable from the surface of the barrier layer upon exposure to laser radiation (claim 1). The element can further comprise a strippable coversheet adjacent to the at infrared sensitive layer (claim 2). When the layer of infrared radiation sensitive material comprises carbon black (claim 3) as the radiation opaque material it is not necessary to use an additional infrared-sensitive material. The concentration of

the radiation-opaque material is chosen so as to achieve the desired optical density, i.e., so that the layer prevents the transmission of actinic radiation to the photopolymerizable layer. In general, a transmission optical density greater than 2.0 is preferred (column 6, lines 34-39). Two or more infrared-sensitive layers can be used (column 5, lines 62-65). The two or more infrared-sensitive layers may optionally comprise a binder such as self-oxidizing polymers, non-self-oxidizing polymers, thermochemical decomposable polymers, and polymers and copolymers of butadiene and isoprene (column 6, lines 45-68). Nitrocellulose is taught as an example of the self-oxidizing polymers. When one of the two or more infrared-sensitive layers comprise nitrocellulose, it meets the present limitations for laser-ablatable layer B of the instant application wherein nitrocellulose meets the limitations for the self-decomposing binder. When one of the two or more infrared-sensitive layers comprise butadiene, it meets the present limitations for the laser-ablatable layer A wherein butadiene meets the present limitation for the elastomeric binder. The photopolymerization layer of Fan meets the present limitations for the photopolymerization layer wherein the elastomeric binder, the monomer and initiator meet the present limitations for the elastomeric binder, the polymerizable compound and photoinitiator respectfully. The strippable coversheet meets the present limitations for the optional removable, flexible protective film. A process for making a flexographic photopolymer printing plate is taught wherein the coversheet is removed, the at least one infrared ablation layer is imagewise ablated to form a mask using an infrared laser and the photosensitive element is then overall exposed to actinic radiation through the mask. The product is then treated with at least one developer solution to remove the infrared ablation layer, which was not removed

during the ablation step, and the areas of the photopolymerizable layer which were not exposed to actinic radiation (column 8, line 53- column 9, line 10). This process is identical to process claimed in the instant application. It is desirable that the imagewise exposure to infrared radiation and the overall exposure to actinic radiation is carried out in the same equipment, preferably a drum which is rotated to allow for exposure (column 9, lines 54-60). This process of having the element mounted on a during the imagewise ablation and overall exposure meets the present limitations for a process using a laser apparatus having a rotating drum wherein the printing element in mounted on the drum for ablation.

b. Therefore it would have been *prima facie* obvious to one of ordinary skill in the art to make a photosensitive element for use as a photopolymer printing plate comprising on a support, at least one layer of a photopolymerizable material on the support, the photopolymerizable material comprising at least one elastomeric binder, at least one monomer, at least one initiator having sensitivity to non-infrared actinic radiation, two or more infrared ablation layers which comprise carbon black, are ablatable by infrared radiation and are opaque to non-infrared actinic radiation and a strippable coversheet wherein the optical density of the infrared ablation layers is greater than 2.0 and each of the ablation layers comprise at least one binder including nitrocellulose and butadiene with reasonable expectation of obtaining a low cost photosensitive element by digital imaging means based on the teachings of Fan (column 2, lines 49-54).

9. A rejection over WO 94/03838 was not made because the teachings of WO 94/03838 are cumulative to the teachings of US 5,262,275. WO 94/03838 claims priority to US Patent Application 07/327,084, which issued as US 5,262,275.

10. Claims 1-3, 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan.

a. In EP 741 330 A1, Fan teaches a photosensitive element for use as a photopolymer printing plate comprising (a) a support (b) at least one layer of a photopolymerizable material on the support, the photopolymerizable material comprising at least one elastomeric binder, at least one monomer, at least one initiator having sensitivity to non-infrared actinic radiation and optionally at least one plasticizer (c) at least one infrared ablation layer which is ablatable by infrared radiation and opaque to non-infrared actinic radiation and (d) a coversheet. The infrared ablation layer comprises at least one infrared absorbing material, a radiation opaque material and at least one binder (claim 1). The at least one binder of the infrared ablation layer is selected from the group consisting of polyamides, polyvinyl alcohol, amphoteric interpolymers, alkylcellulose, hydroxyalkyl cellulose, nitrocellulose, copolymers of ethylene and vinyl acetate, cellulose acetate butyrate, polybutyrals, cyclic rubbers, and combinations thereof (claim 2). The at least one infrared sensitive layer can comprise a secondary binder when it is desirable to provide the layer with characteristics such as elasticity, scratch resistance and adhesion. Examples of suitable secondary binders include polystyrene polymers, polyacrylate esters, polymethacrylate esters and polyurethanes (page 7, lines 35-56). Two or more infrared sensitive layers can be used

(page 5, lines 31-39). When two or more infrared sensitive layers are used, the infrared sensitive layer comprising nitrocellulose meets the present limitations for the laser-ablatable layer B wherein the nitrocellulose meets the present limitations for the self-decomposing binder. When one of the two or more infrared sensitive layers comprises a polyamide or polyurethane, it meets the present limitations for the laser-ablatable layer A wherein the polyamide or polyurethane meets the present limitations for the elastomeric binder. According to the specification, elastomeric polyamides and polyurethanes are suitable for the laser-ablatable layer A (page 6, lines 14-17). The infrared absorbing material can be the same as the radiation opaque material (claims 1 and 6), which can be carbon black (claim 7). The concentration of carbon black as the radiation opaque material is chosen so as to achieve the desired optical density, i.e., so that the radiation-opaque layer prevents the transmission of actinic radiation to the photopolymerizable layer which is preferably greater than 2.0 (page 5, lines 54-57). In the instant application, the optical density of the entire sequence of IR-ablative layers in the actinic spectral region is required to be at least 2.5. The optical density of greater than 2.0 taught by Fan encompasses the optical density of at least 2.5 of the present application. The photopolymerization layer of Fan meets the present limitations for the photopolymerization layer wherein the elastomeric binder, the monomer and initiator meet the present limitations for the elastomeric binder, the polymerizable compound and photoinitiator respectfully. The coversheet meets the present limitations for the optional removable, flexible protective film. A process for making a flexographic photopolymer printing plate is taught wherein the coversheet is removed, the at least one infrared ablation layer is imagewise ablated to form a mask and the photosensitive

element is then overall exposed to actinic radiation through the mask. The product is then treated with at least one developer solution to remove the infrared ablation layer, which was not removed during the ablation step, and the areas of the photopolymerizable layer which were not exposed to actinic radiation (claim 11). This process is identical to process claimed in the instant application. In Example 1, the infrared sensitive layer of the photosensitive printing element was imagewise ablated using an experimental laser engraving apparatus equipped with a Nd:YAG laser. The element was mounted on the exterior of a rotating drum and then exposed in a spiral fashion as the drum rotated (page 11, lines 24-34). This process of using a laser engraving apparatus to ablate the infrared sensitive layer of a mounted photosensitive element meets the present limitations for a process using the laser apparatus having a rotating drum wherein the printing element in mounted on the drum for ablation.

b. Therefore it would have been *prima facie* obvious to one of ordinary skill in the art to make a photosensitive element for use as a photopolymer printing plate comprising on a support, at least one layer of a photopolymerizable material on the support, the photopolymerizable material comprising at least one elastomeric binder, at least one monomer, at least one initiator having sensitivity to non-infrared actinic radiation and optionally at least one plasticizer, two or more infrared ablation layers which comprise carbon black, are ablatable by infrared radiation and are opaque to non-infrared actinic radiation and comprise carbon black as the infrared absorbing material and a coversheet wherein the optical density of the infrared ablation layers is greater than 2.0 and each of the ablation layers comprise at least one binder selected from the group consisting of polyamides, polyvinyl alcohol, amphoteric interpolymers,

alkylcellulose, hydroxyalkyl cellulose, nitrocellulose, copolymers of ethylene and vinyl acetate, cellulose acetate butyrate, polybutyrals and cyclic rubbers with reasonable expectation of obtaining a low cost photosensitive element by digital imaging means without requiring the presence of a barrier layer based on the teachings of Fan (page 3, lines 42-46).

11. A rejection over US 6,238,837 B1 was not made because the teachings of US 6,238,837 B1 are cumulative to the teachings of EP 741 330 A1. EP 741 330 A1 claims priority to US Patent Application 08/432,450, which issued as US 6,238,837 B1.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. In US Patent Application Publication 2002/0110751 A1, Philipp et al teach a photosensitive flexographic printing element for the production of flexographic printing plates by digital imaging by means of lasers which has an IR-ablative layer with a polyether-polyurethane as binder (abstract).

b. In US 6,521,390 B1, Leinenbach et al teach photosensitive printing element for preparing flexographic printing plates via computer-to-plate technology with a support, a photopolymerizable layer and an IR-ablatable layer (abstract).

c. In US Patent No. 5,719,009, Fan teaches a process for making a flexographic printing plate from a flexographic element having an infrared ablatable layer capable of being selectively removed by a laser beam (abstract).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Gilliam whose telephone number is 703-305-1330. The examiner can normally be reached on Monday through Friday, 8:00 AM - 6:00 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

b. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Barbara Gilliam

Barbara Gilliam
Examiner
Art Unit 1752

bg
March 10, 2003